

- Malacosoma alpicola* Stgr. (larvae) Col C., En.
 [*Lasiocampa quercus* (L.) (?) ssp. *alpina* Freyer En.]
Cerura vinula (L.) Col C.
Clostera curtula (L.) Col C.
Agrotis simplonia Geyer Val. *exclamationis* (L.) Val.
Ochropleura plecta (L.) Col C.
Noctua comes Huebn. On.
Anaplectoides prasina D. & S. Col C.
Hada nana Hufn. Col C., Val.
Polia bombycina Hufn (= *Aplectata advena* D. & S.) Val.
Pachetra sagnittifera Hufn. Col C., Val.
Sideridis evidens Huebn. Val.
Heliophobus reticulata Goeze Val
Mamestra pisi (L.) Col. C. *bi-ren* Goeze (*glauca* Hübn.) Col C., Val.
dysodea D. & S. Val.
Hadena luteago D. & S. Val. *irregularis* Hufn. Val.
Mythimna conigera D. & S. Col C. Val. *comma* (L.) Col C.
Sterrrha humiliata Hufn. Val. *serpentata* Hufn. Tho. *aversata* (L.) Val. *inornata* Haw. Val.
Scopula immorata (L.) Tho. *incanata* (L.) Val.
Rhodostrophia calabra Pat. Val.
Lomaspilis marginata (L.) Col. C.
Semiothisa liturata Clerck Col C. *clathrata* (L.) Col C. [En.]
Selenia bilunaria Esp. Col C.
Gonodontis bidentata Clerck Col C.
Alcis repandata (L.) Col C., Val.
Gnophos ambiguatus Dup Col C. *glaucinarius* Hübn. Col C. Val.
Catascia serotinarina D. & S. Val.
Psolos quadrifaria Sulzer Col P.
Thetidia smaragdaria (Fab) Val.
Eilema complana (L.) (larva) Val.
Parasemia plantaginis (L.) f. typ. Col P. *f. matronalis* Frr En.
Diacrisia sannio (L.) Tho.
Spilosoma lucricipeda (L.) Col C. *lutea* Hufn. Col C.
Zygaena transalpina Esp. ssp *italica* Dziurz. Val.
Dypessa ulula Borkh. Val.
Hepialus humuli L. Col C.
Hypomeuta evonymella Lewis En

On the Nest of *Halictus (Seladonia) jucundus komensis* Cockerell (Hymenoptera : Apoidea, Andrenidae)

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Synopsis

A description, with figure, is given of the nest, cells and contents of the Social Bee *Halictus (Seladonia) jucundus komensis* Cockerell from Karen near Nairobi, Kenya.

Introduction

Halictus (Seladonia) jucundus Smith is widespread in Africa from the Cape to Southern Rhodesia and Zanzibar. Cockerell (1937). Cockerell (1939) described the subspecies *komensis* from the east end of Kome Island, North West

Victoria Nyanza, from material collected by G. D. Hale Carpenter on 12th January, 1929. In the British Museum, Natural History, named collection there are specimens taken by Dr V. G. L. van Someren labelled Jinja, Uganda, 1928, and Nairobi, Kenya, 1930, and these are named by Cockerell as *H. jucundus* var.

Howell V. Daley (personal communication) who kindly compared specimens of *Halictus* for me with the material in the British Museum reported that my specimens from Karen, are more brassy-green than the type of *H. jucundus* Smith and that they agree with the subspecies *komensis* type of Cockerell. Dr Daly wrote that he could not trace anything concerning the biology of the species.

The Nest of *H. (S) jucundus komensis*

An observant member of my staff reported that "three small golden bees" were hovering above a bare patch of soil resulted in the following record on part of the biology of the bee. On 10th January 1971, at Karen, 2000 m, three golden bees, all pollen laden were seen hovering above a small proturbence on the soil surface and one by one they entered a small hole in this. Later, they or others emerged from what was obviously the entrance to the nest. Three female bees were captured, one after the other as they returned to the nest with pollen, together with a single male.

The entrance to the burrow was raised above the soil surface by about 2.0 cm and was some 3.4.0 cm long and excavated at a slight angle above the soil surface and was probably in part built up with excavated soil. Fig. I. Careful digging below the entrance tube revealed a burrow that ran almost vertically down for 10.5 cm and led to a cluster of cells. While excavating a further female bee was captured in the burrow. The cells, a cluster of five, were orientated almost horizontally around the burrow. Cell I contained a female bee about to emerge, the exuvium having been shed except on the wings. Cell II contained a very dark female pupa and Cell III, a less advanced pupa. Two other cells were empty, their inmates having emerged, however one, a male, whose wings were still partly sheathed, was collected from the excavation debris.

Digging deeper another burrow was found leading from the base of the first cell cluster, downwards and roughly at 45°. This burrow was approximately 7.0 cm long and led after a sharp bend to a second series of cells. These were obviously new and like the first were orientated around the burrow. Cell VI was being provisioned with pollen. Cells VII-IX were sealed and each contained a pollen ball and a single egg. Cell X contained a pollen ball plus a very small larva c. 3.0 mm in length.

During this second operation a further two bees were captured which had probably escaped from the burrow or had

been provisioning Cell VI. Two pollen laden bees were taken while they flew around the excavation and an immature male, probably from the first cluster of cells was found in the debris.

The diameter of the main and subsidiary burrow, c. 2.0-3.0 mm, was just greater than the width of the bee enabling the insect to turn round easily within the tube. The cells appear to have been excavated and were ovate-elliptic in section, 8.5 mm long internally and 4.5 mm at the broadest. The apex or entrance to the cell was directly attached to the burrow. Each cell was lined with a matrix containing some fine "fibres" cemented with secretion which gave a polished shiny interior which was slightly ridged longitudinally, possibly the result of pressure from the mandibles as the matrix was being laid down. At the cell apex there was a collar of fine white "fibre" and adhering to these numerous small grains of soil sealing the exit of each cell.

The balls of bright orange pollen, possibly from a garden composite on which the bees had been seen, were roughly spherical with a diameter of 4.0 mm and weighed 31.5 mgm each. The eggs were glistening pearly white, slightly curved, sausage-shaped with ends rounded and measured 2.5 mm. The eggs were attached to the wall of the cell above the pollen ball. There was no obvious egg sculpture (high power) and each was clearly in a different stage of development. The one small larva was white, opaque, with slightly yellowish head and the body carried transverse, alternate, patterned and plain striations. The larva was lying on the pollen ball and feeding actively.

The soil of the nest site was red lateritic, friable, and was moist due some 29 mm of rain that had fallen some days prior to excavation. At 10.5 cm depth the site of the first cell cluster the soil was moist enough to mould with the fingers. The second series of cells was situated just above a rather hard well compacted moist subsoil.

Since so many pollen laden female bees were attending the nest it is clear that *H. (S) jucundus komensis* is a social species, like many others in the genus and newly emerged females from the first cluster of cells probably later assist in provisioning later series of cells.

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